

**DRAFT  
INTERIM ACTION REPORT  
WORK PLAN FOR DETENTION BASIN NO. 1  
AND SOUTHWEST LOWER YARD  
UNOCAL EDMONDS TERMINAL**

Prepared for  
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**ACRONYMS AND ABBREVIATIONS**

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bcy	banked cubic yards
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, xylenes
cy	cubic yards
DRO	TPH as diesel range organics
FS	feasibility study
GRO	TPH as gas range organics
HO	TPH as heavy oil range organics
mg/kg	milligram per kilogram
MLLW	mean lower low water
MTCA	Model Toxics Control Act
MW	monitoring well
NPDES	National Pollutant Discharge Elimination System
PAHs	polycyclic aromatic hydrocarbons
RI	remedial investigation
SAP	sampling and analysis plan
SEPA	State Environmental Policy Act
TPH	total petroleum hydrocarbons
WAC	Washington Administrative Code

# 1 INTRODUCTION

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Union Oil Company of California, dba Unocal, entered into Agreed Order No. DE 92TC-N328 with the Washington Department of Ecology (Ecology) to conduct environmental investigations at the UNOCAL Edmonds Terminal (Terminal) located at 11720 Unoco Road in Edmonds, Washington (Figure 1-1). The scope of the Agreed Order, issued pursuant to the Model Toxics Control Act (MTCA), included a facility background history review, a remedial investigation (RI) and feasibility study (FS), and an evaluation of an existing free product recovery system.

The facility background history review and product recovery system evaluation were completed in 1994 and reported to Ecology (EMCON, 1994a and 1994b). The RI was performed between October 1994 and August 1996 and reported to Ecology (EMCON, 1996a and 1998; MFA, 2001a). A preliminary FS was performed in 1996 and reported to Ecology (EMCON, 1996b). An updated and expanded FS is being performed and is scheduled to be reported to Ecology in 2003.

During the FS, Unocal proposes to perform interim actions at the Terminal to reduce potential threats to human health and the environment, to provide additional information for the FS and subsequent design of a cleanup action, and to improve portions of the site for redevelopment purposes. Specific to this proposed interim action, asphalt material and petroleum-contaminated soil will be removed from Detention Basin No. 1 and shipped off site for recycling, treatment and/or disposal, and petroleum-contaminated soil will be removed from the southwest section of the Terminal's lower yard and shipped off site for recycling, treatment and/or disposal. The non-basin area is identified as the "Southwest Lower Yard" (see Figure 2-1).

Ecology approval is required prior to initiating the interim action. If approval is received in May 2003, Unocal anticipates proceeding with the lower yard interim action in June 2003.

As required by WAC 173-340-430, Interim Actions, a report must be prepared before performing an interim action unless otherwise directed by Ecology. This work plan constitutes the report. It identifies and describes the interim action Unocal proposes to

perform at the Terminal, and is organized as follows:

- Section 2 provides a summary of the Terminal features and existing site conditions pertinent to the interim action;
- Section 3 describes the interim action and how it meets the criteria of WAC 173-340-430;
- Section 4 provides additional details on implementation of the interim action;
- Section 5 describes the construction documentation procedures;
- Section 6 notes the public participation activities;
- Section 7 describes the reporting procedures;
- Section 8 discusses pertinent requirements of the State Environmental Policy Act; and
- A preliminary schedule is provided in Section 9.

A list of state and local permits pertinent to the interim action is provided in Appendix A. Ecology intends to exempt these permits pursuant to WAC 173-340-710 while requiring implementation of their substantive requirements. The substantive requirements are noted in Section 4.

## 2 SITE CONDITIONS

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### 2.1 Site Description

The Terminal comprises approximately 47 acres of land on and adjacent to the northern slope of a hillside and lies within approximately 1,000 feet of the Puget Sound shoreline. At its nearest point (southwest corner of lower yard) the Terminal boundary is approximately 160 feet from the Puget Sound shoreline. The Terminal has two distinct areas, the upper yard (former tank farm) area and the lower yard area (Figure 2-1).

The lower yard is approximately 22 acres, lying east of the Burlington Northern Santa Fe Railroad (BNSF RR) right-of-way, south of Edmonds Marsh, west of the Deer Creek Salmon Hatchery, and north of the upper yard. The lower yard elevation ranges from approximately 10 to 25 feet above the mean lower low water datum (MLLW). The lower yard consists of office buildings, two former truck loading racks, residual aboveground piping, two underground (former vapor recovery) tanks, two underground vaults, Detention Basin No. 1, Detention Basin No. 2, and an oil/water separator. Previous operations also included an air-blown asphalt plant, an asphalt packaging warehouse, and a railcar loading/unloading facility.

The upper yard is approximately 25 acres located immediately south of the lower yard. Upper yard elevations range from approximately 25 to 150 feet (MLLW). The upper yard was a former tank farm that contained 23 above-ground storage tanks. The tanks were removed in Summer 2000.

UNOCAL operated the Terminal from 1923 to 1991. Fuel was brought to the Terminal on ships, pumped to the storage tanks in the upper yard, and loaded from the tanks into rail cars and trucks for delivery to customers. An asphalt plant operated on the site from 1953 to the late 1970s. Detailed descriptions of the Terminal facilities and historical activities are presented in the Background History Report (EMCON, 1994a). The facility is currently used only for office purposes.



## 2.2 Detention Basin No. 1

### 2.2.1 Background

Detention Basin No. 1 is located in the northern-most corner of the lower yard, is roughly rectangular in shape, and is approximately 180 feet by 630 feet in size (Figure 2-1). The basin serves as a storm water detention basin during heavy rainfall events.

The basin was constructed in 1952 (GeoEngineers, 1988). The original configuration was L-shaped, with a footprint size of approximately 120,000 square feet (Figure 2-2). The area was originally occupied by a small pond, pasture and marshland. Dikes were constructed around the unlined impoundment area by dredging sediment from inside the contained area. A drainage channel was excavated around the northern and northwestern perimeters to carry the flow from Willow Creek.

In the late 1960s, the basin was modified by cutting off the southern “leg” to create an impoundment to contain refinery and asphalt plant sludges and runoff (GeoEngineers, 1988). The northern portion of the basin was retained for storm water management, and sized to provide sufficient retention capacity for 100 percent of the volume of petroleum product contained by Tanks 3716 and 3717 (formerly located in the eastern portion of the upper yard). This equates to a design capacity of 6.8 million gallons of storm water.

A number of discharges of petroleum products impacted the basin between 1954 and the late 1970s, including off-specification, emulsified asphalt from the on-site asphalt plant. Unocal ceased operation of the asphalt plant in the late 1970s. The waste asphalt material and petroleum-contaminated soil within Detention Basin No. 1 (“basin material”) will be removed from the basin as an interim action.

### 2.2.2 TPH Constituents in Basin Material

The basin material was sampled during the RI. Of the 16 samples analyzed from Detention Basin No. 1, total petroleum hydrocarbons in the diesel range (TPH-D) were detected in 11 samples, TPH in the oil range (TPH-O) in 10 samples, and TPH in the gasoline range (TPH-G) in 5 samples (MFA, 2001a). *Maximum* concentrations of TPH-D, TPH-O, and TPH-G are provided in the table below. Benzene, toluene, ethylbenzene, and total xylenes (BTEX) were detected in less than one third of the samples, with *maximum* (estimated) concentrations of 0.24, 2.1, 0.57, and 4.6 mg/kg, respectively. Figure 2-3 presents the TPH results for Detention Basin No. 1.

The highest concentrations of TPH and BTEX were found in the central portion of the basin, in the southeast corner of the basin, and in and near the northern submerged portion.

Carcinogenic PAHs (cPAHs) were generally detected in less than half of the Detention Basin No. 1 samples. Detected cPAH concentrations varied widely. The *maximum* cPAH concentrations ranged from 0.250 mg/kg (estimated) for indeno(1,2,3-cd)pyrene to 14 mg/kg for chrysene. The highest concentrations of cPAHs were generally found at locations with elevated concentrations of TPH.

nPAHs were generally detected in less than half of the Detention Basin No. 1 samples, fluoranthene and phenanthrene being the exceptions. Detected nPAH concentrations varied widely. The *maximum* nPAH concentrations ranged from 0.400 mg/kg (estimated) for acenaphthylene to 250 mg/kg for fluoranthene. The highest concentrations of nPAHs were generally found at locations with elevated concentrations of TPH.

### **2.2.3 Metals in Basin Material**

Arsenic, chromium, copper, lead, and zinc were detected in all RI samples collected from Detention Basin No. 1 (MFA, 2001a). Cadmium was detected in most samples, mercury was detected in about half the samples, and antimony was only detected in one sample. Metals concentrations were typically low, in the range of Puget Sound background concentrations.

The *maximum* concentrations of TPH constituents and metals detected in Detention Basin No. 1 are provided in the following table.

Constituent	<i>Maximum Detention Basin No. 1</i> Concentration (mg/kg)	Puget Sound Background Concentration <sup>a</sup> (mg/kg)
TPH-G	190 E	--
TPH-D	400,000	--
TPH-O	190,000	--
Benzene	0.24 E	--
Chrysene	14	--
Antimony	9.8 JE	--
Arsenic	30 J	7
Cadmium	1.0 J	1
Chromium	51	48
Copper	100	36
Lead	240	24
Mercury	3.7	0.07
Zinc	250 E	85
<sup>a</sup> Ecology, 1994. E = Estimated quantity. J = Estimated quantity; the reported value is between the method detection limit (MDL) and the practical quantitation limit (PQL).		

2.2.4 Southwest Lower Yard

**Background.** Historical operations in this part of the lower yard included rail car unloading, limited bulk fuel oil storage, a boiler house, pump room and laboratory. The car unloading area consisted of two parallel railroad track spurs with an unloading rack lying between the two sets of tracks. Rail service to the facility was discontinued in the 1960s and the unloading area was dismantled and the area regraded in 1974 (EMCON, 1994).

In 1990, approximately 350 gallons of marine diesel fuel were spilled when a sump located in the southwest end of the bwer yard overflowed (GeoEngineers, 1990a). Most of the spilled material was recovered the day of the spill. The horizontal extent of the residual fuel was estimated from the observed staining of the surface and the vertical extent of the spill area was estimated using additional field screening methods. Soil samples were also collected.

**TPH Constituents in Southwest Lower Yard Soil.** The soil in the Southwest Lower Yard was sampled in 1990 in the spill area noted above (GeoEngineers, 1990a) and more extensively during the RI (MFA, 2001a). Additionally, soil samples were collected from test pits excavated in 2001 along the western boundary of this area (MFA, 2003).

TPH concentrations in the Southwest Lower Yard ranged from non-detect to 13,600 mg/kg for TPH-D. Elevated TPH concentrations were detected at the surface and to depths of approximately 6 feet bgs. The *maximum* concentrations of TPH constituents detected in the Southwest Lower Yard are provided in the table below.

Constituent	<i>Maximum Concentration,</i> Southwest Lower Yard (mg/kg)
TPH-G	3,600
TPH-D	13,600
TPH-O	9,900
Benzene	4.1
Chrysene	2.2
E= Estimated quantity. J = Estimated quantity; the reported value is between the method detection limit (MDL) and the practical quantitation limit (PQL).	

## **3 PROPOSED INTERIM ACTION**

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Assuming the interim action is approved, Unocal has scheduled the work to begin in Spring 2003. Removal of the basin material and petroleum-contaminated soil from the Southwest Lower Yard are proposed to reduce the potential threat to human health or the environment, to improve the basin for site redevelopment purposes, and to complete cleanup of the Southwest Lower Yard prior to development of the Terminal's Upper Yard.

### **3.1 Description**

#### **3.1.1 Detention Basin No. 1**

The planned excavation area is shown in Figure 3-1. The basin material will be excavated, dewatered, and shipped off site for recycle, treatment and/or disposal. Depending on its quality, groundwater/storm water requiring removal from the basin during excavation activities will be discharged to Detention Basin No. 2, the oil/water separator, or to a holding tank for subsequent discharge pursuant to conditions of the Terminal's NPDES discharge permit. Provisions for temporary on-site treatment of this water (e.g., a filtration unit) will be evaluated during preparation of the construction specifications. A copy of the Terminal's NPDES permit is provided in Appendix B.

Based on the basin dimensions, 30,000 bcy of basin material may require removal. This volume is based on an areal extent of 180 feet by 630 feet (full extent of basin). The thickness of the basin material requiring removal is assumed to be 6 feet in those areas of the basin that are typically inundated with water, and 8 feet in those areas that are typically not inundated with water (Figure 3-1).

For the detention basin interim action, it is anticipated that Unocal-specified action levels will be used to guide excavation of TPH- and metals-contaminated material. The TPH action level will be based on protection of groundwater. The action level for an indicator metal will likely be based on the associated natural background concentration. The Unocal-specified action levels are not final MTCA cleanup levels or remediation levels for the lower yard. The Unocal-specified action levels have not been accepted by Ecology as protective of ground water or

acceptable as final cleanup levels or remediation levels. Unocal is taking this action with the understanding that further remediation may be required as part of final cleanup.

### **3.1.2 Southwest Lower Yard**

Petroleum-contaminated soil will be excavated from the Southwest Lower Yard and shipped off site for recycling, treatment and/or disposal. Additionally, concrete containment walls, concrete slabs, a sump, and former tank pads will be demolished and the debris shipped off site for disposal.

The volume of soil that is anticipated to require removal in the Southwest Lower Yard is 10,000 bcy. This volume is based on an areal extent of approximately 42,000 square feet, extending from the toe of the upper yard slope out to the fence line, and extending from the trestle to monitoring well MW-120 (Figure 3-2). The assumed depth of soil requiring removal is 7.5 feet, based on the RI sampling results. The volume estimate further assumes that the surface 1-foot of soil is clean, based on surface soil data for the lower yard. The planned area of excavation is shown on Figure 3-2.

It is anticipated that a Unocal-specified, groundwater-protection-based action level will be used to guide excavation of TPH-contaminated soil in the Southwest Lower Yard. The Unocal-specified action levels are not final MTCA cleanup levels or remediation levels for the lower yard. The Unocal-specified action levels have not been accepted by Ecology as protective of ground water or acceptable as final cleanup levels or remediation levels. Unocal is taking this action with the understanding that further remediation may be required as part of final cleanup.

## **3.2 General Requirements**

Consistent with WAC 173-340-430(2)(b), this interim action will clean up hazardous substances from a part of the site but is not intended to achieve cleanup standards for the lower yard.

## **3.3 Relationship to the Final Cleanup Action**

Consistent with WAC 173-340-430(3)(b), this interim action does not foreclose reasonable alternatives for the final cleanup action in the lower yard.

### 3.4 Alternatives Considered

Consistent with WAC 173-340-430(7)(a)(ii), Unocal considered other interim actions for Detention Basin No. 1 and the Southwest Lower Yard. Alternatives considered included bioremediation of the basin material and containment of both the basin and Southwest Lower Yard by capping.

Capping was not selected as an interim action because it may not be consistent with the final cleanup action. Future redevelopment of the site is not known at this time; a cap would be difficult to install without risk of future damage. Additionally, the basin is used for storm water management. Bioremediation of the basin material was not selected as an interim action due to space requirements, predicted remediation timeframe, and the occurrence of metals in portions of the basin material.

### 3.5 Cleanup Standards

Cleanup standards consist of cleanup levels, a point of compliance (location) at which cleanup levels must be achieved, and other regulatory requirements that apply to the site because of the type of action and/or location of the site (WAC 173-340-700). As noted above, this interim action will clean up hazardous substances from a part of the site but is not intended to achieve cleanup standards for the lower yard. As such, cleanup levels and points of compliance have not been defined for this interim action.

“Other regulatory requirements” are requirements that apply to the site because of the type of action and/or location of the site (“applicable state and federal laws”) (WAC 173-340-700(3)). Applicable state and federal laws are defined by MTCA regulation as legally applicable requirements, including those cleanup standards, standards of control, and other environmental protection requirements, criteria, or limitations adopted under state or federal law that specifically address a hazardous substance, cleanup action, location or other circumstances at the site (WAC 173-340-710(3)). Additionally, Ecology may determine that other “relevant and appropriate requirements” may be considered in establishing cleanup standards (WAC 173-340-710(4)).

Specific to this interim action, these include State Environmental Policy Act requirements and National Pollutant Discharge Elimination System (NPDES) requirements for wastewater and storm water discharges. Potentially applicable are federal requirements pertaining to dredging a wetland.

The primary federal law that regulates activities in or near wetlands consists of Sections 401 and 404 of the Clean Water Act (CWA). Dredging, filling or alteration of wetlands is regulated by the US Army Corps of Engineers (Corps) under Section 404 of the CWA. Federal regulation

is limited to “jurisdictional” (regulated) wetlands. Artificially created wetlands, and those not associated with waters of the United States, may be nonjurisdictional wetlands. In particular, artificial wetlands intentionally created from non-wetland sites, including but not limited to detention facilities and wastewater treatment facilities and ponds, may be considered nonjurisdictional.

A Section 404 permit is potentially applicable to the detention basin interim action. A wetland evaluation and delineation of Detention Basin No. 1 was conducted in 1995. Detention Basin No. 1 was delineated as a disturbed, emergent wetland and would likely be classified a Category III wetland according to the City’s Critical Areas Ordinance classification system (AAI, 1995).

Only the Corps can make a determination as to whether a wetland is jurisdictional. In evaluating permit requirements for Detention Basin No. 1 for the Federal Highway Administration, the Corps determined that the basin “may continue to be used for stormwater detention by the ferry terminal, and neither the basin’s current cleanup nor future uses for stormwater detention will require DA [Department of Army] permits” (ACOE, 1995). A copy of this letter is provided in Appendix C. Based on this Corps determination, a Section 404 permit is not required for remediating the detention basin.

### **3.6 Contingency Considerations**

This interim action is being taken to clean out a detention basin whose extent of contamination, based on the RI results, is expected to be within the boundaries of the constructed basin except along its southern boundary. Should contamination extend beyond the basin berms at the end of the interim action, the area in which it occurs will be delineated. The area will be evaluated for the appropriateness of excavation versus other cleanup methods. Along the southern basin boundary, contaminated soil is anticipated to extend to Detention Basin No. 2. The excavation will be halted prior to reaching the northern boundary of Detention Basin No. 2. Similarly, should contamination extend beyond the Southwest Lower Yard (e.g., beyond the fence line), the area in which it occurs will be delineated. The area will be evaluated for the appropriateness of continued, lateral excavation or left to be addressed with the balance of the lower yard.

### **3.7 Post-Excavation Monitoring**

Post-excavation sampling will be performed to document the concentration and distribution of contaminants that may remain at the end of the interim action. Sampling will be performed following procedures to be specified in a prepared addendum to the



Terminal's Sampling and Analysis Plan (SAP) (MFA, 2001b). The addendum will be transmitted to Ecology for review.

Implementation details for the proposed interim action are provided in Section 4.

## 4 IMPLEMENTATION OF PROPOSED INTERIM CLEANUP ACTION

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### 4.1 Mobilization

Prior to excavation, a private utility locating company will identify and mark the locations of underground utilities and structures within 50 feet of the planned excavation areas. In the Southwest Lower Yard, the electrical connection to an existing shed will be disconnected by a licensed electrician. All electrical components in the shed will be disconnected. Electrical modifications will be required to provide continued service to the dock.

Existing monitoring wells LM-2, LM-3, MW-108, and MW-109, which are located within the basin berms, are anticipated to be protected during excavation activities. In the Southwest Lower Yard, existing monitoring wells MW-11, MW-13, MW-120, MW-124, MW-125, MW-127, and MW-146 may require removal. Where necessary, a licensed well driller will abandon the groundwater monitoring wells pursuant to procedures described in *Minimum Standards for Construction and Maintenance of Wells* (WAC 173-160-310). If existing wells are abandoned, replacement wells will be installed as part of the restoration activities.

A traffic control plan will be prepared. The site health and safety plan will be updated. Air monitoring procedures will be established, for purposes of controlling dust and monitoring and controlling petroleum odors as necessary during the excavation work. Exclusion zones and associated site controls will be established in accordance with the health and safety plan. An erosion and sedimentation control (ESC) plan will also be prepared and submitted to the City of Edmonds for review. The ESC plan will specify control methods to be implemented during excavation as well as post-excavation restoration requirements. Storm drain inlets will be protected with filter fabric fences or straw bale barriers. Vegetation will be removed from the detention basin.

Waste profiles will be prepared for each material to be transported off site, as required by the treatment or disposal facility. Profiles will be submitted to prospective facilities identified by Unocal, and waste acceptance will be obtained.

## **4.2 Removal of Structures**

Several unused structures remain in the Southwest Lower Yard. Most of these features are anticipated to require removal to allow soil excavation and include demolition and removal of concrete containment walls, slabs, tank pads, sump, and pipe supports; removal of a compressed air tank, air compressors, and compressor enclosures; and demolition of a cinder block electrical shed. Miscellaneous concrete debris will also be removed.

## **4.3 Excavation**

Excavation oversight and monitoring for consistency with the interim action will be performed by a professional engineer registered in the state of Washington or a qualified technician under the direct supervision of a professional engineer registered in the state of Washington.

### **4.3.1 Excavation Extent**

The volume of material in Detention Basin No. 1 that may require removal is 30,000 bcy. This volume was estimated using the basin dimensions and a 6-foot thickness of material in that area of the basin that is typically inundated with water, and an 8-foot thickness of material in that area of the basin that is typically not inundated with water (Figure 3-1). The areal extent of the material is assumed to cover the entire basin. Based on reported basin construction details, the maximum depth of excavation in the basin is anticipated to be 8 feet.

The volume of soil that is anticipated to require removal in the Southwest Lower Yard is 10,000 bcy. This volume is based on an areal extent of approximately 42,000 square feet, extending from the toe of the upper yard slope out to the fence line, and extending from the trestle to monitoring well MW-120 (Figure 3-2). The assumed depth of soil requiring removal is 7.5 feet, based on the RI sampling results. The volume estimate further assumes that the surface 1-foot of soil is clean, based on surface soil data for the lower yard.

### **4.3.2 Storm Water Management**

During the construction period, storm water will be managed in the lower yard such that it does not discharge into Detention Basin No. 1. This will be achieved by maintaining the water in Detention Basin No. 2 at a level that will prevent spillover to Detention Basin No. 1. This is not anticipated to be a problem as spillover rarely occurs even in rainy winter months. Rain falling directly into the basin will be managed by trenches, pumps, and/or barriers to control and convey storm water away from the areas of active excavation.

Storm water runoff in the Southwest Lower Yard will be managed using the existing storm drain system. Sections of this system will likely require removal; the remaining line will continue to be used.

A sedimentation and erosion control plan will be prepared, and will address controls to be implemented to reduce erosion during the construction period.

#### **4.3.3 Dewatering**

**Basin Dewatering.** In-basin work will require control or removal of groundwater/storm water ponded in the basin. Depending on contaminant concentrations, water will be discharged to Detention Basin No. 2, the oil/water separator, or to a holding tank for subsequent discharge pursuant to conditions of the Terminal's NPDES discharge permit. Provisions for temporary on-site treatment (e.g., filtration unit) will be evaluated during preparation of the construction specifications.

**Basin Material Dewatering.** Dewatering of excavated basin material (to remove free-draining water) will be performed within the basin and/or in an established area outside the basin. In-basin techniques may include trenching to allow the water to drain by gravity to an adjacent location, or by pumping the water from a trench or dewatering well. Dewatering may be accomplished outside the basin, in a dedicated area established to allow gravity separation of water from the excavated material. The dedicated area will be lined and contained to control the separated water.

#### **4.3.4 Soil Stockpiles**

Temporary stockpiles may be used by the contractor prior to transferring basin material or soil to trucks for transportation off site. Stockpiles will be established in locations approved by Unocal.

Stockpiles will be placed on impermeable liners, and covered and secured at the end of each work day. Before placing liners, the contractor will clear the existing ground surface of debris and sharp objects. Soil stockpile covers will be secured so that they cannot be blown off by wind, and will not allow precipitation to come in contact with excavated soils. Berms will be constructed around stockpiles to prevent run-on and run-off.

#### **4.3.5 Truck Loading**

Trucks will be loaded in a manner that prevents spilling or tracking of contaminated soil. Loose material that falls onto the truck exterior during loading will be removed before the truck leaves the loading area. No free draining liquid will be allowed.

Truck loading will be adjacent to stockpiles or excavations, just outside designated exclusion zones. Any material collected on the ground surface in the loading area will be placed back into the truck or respective excavation. The contractor will be responsible for ensuring that trucks loaded for off-site disposal are within acceptable weight limits. The trucks will be covered before they leave the loading area.

Off-site hauling will be performed consistent with the traffic control plan, which will set work hours and describe truck traffic control on Pine Street.

### **4.4 Sampling and Analysis**

After excavation, samples will be collected to evaluate contaminant concentrations at the extent of the excavation. The samples will be submitted to North Creek Analytical, Inc., for analysis of TPH as gasoline range organics (GRO), diesel range organics (DRO), and heavy oil (HO); BTEX; and PAHs. Samples collected from the detention basin will also be analyzed for an indicator metal. Laboratory results and field observations will be used to determine if the final extent of excavation has been reached, or if additional removal is necessary.

Soil samples will be collected and analyzed using the procedures identified in the SAP. The associated analytical methods and method detection limits are described in the SAP.

### **4.5 Area Restoration**

#### **4.5.1 Detention Basin No. 1**

The excavated basin will be left as-is following excavation, consistent with its continued use as a storm water detention basin for the Terminal. The berm surrounding Detention Basin No. 1 may require partial removal during excavation activities and will be repaired. Pursuant to the sedimentation and erosion control plan, the berms will be seeded or otherwise protected for erosion control. At this time any impacted storm drain catch basins in the areas adjacent the basin will be cleaned of accumulated material and storm drain inlets will be protected.

The extent of excavation will be surveyed. After the area is restored, a licensed well driller will drill and install any necessary replacement groundwater monitoring wells. The new wells will be

installed following procedures specified in the SAP. Groundwater monitoring at these wells may be performed more frequently than the current biannual monitoring schedule, to assess post-excavation groundwater quality.

#### **4.5.2 Southwest Lower Yard**

Prior to backfilling, the extent of excavation will be surveyed. The area will be backfilled with clean, imported fill material. Catch basins and drainage pipe will be reinstalled where necessary and the area will be graded to drain to the storm drain system. At this time, any impacted catch basins in the perimeter areas will be cleaned of accumulated material and storm drain inlets will be protected.

After the area is restored, a licensed well driller will drill and install replacement groundwater monitoring wells. The new wells will be installed following procedures specified in the SAP.

## 5 CONSTRUCTION DOCUMENTATION

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As required by WAC 173-340-400(6)(b), the construction aspects of the interim action will be performed under the oversight of a professional engineer registered in the state of Washington or a qualified technician under the direct supervision of a professional engineer registered in the state of Washington.

During implementation, detailed records will be kept to document construction techniques, materials removed, and tests and measurements performed. The documentation procedures are discussed briefly below.

The contractor will complete records to document the work performed. These records will include, but are not limited to, the following:

- **Daily Activity Log** - A daily activity log will be completed by the contractor to describe general site activity and to identify personnel working on site. These records will be completed daily and will be provided to the Unocal construction supervisor weekly;
- **On-Site Transfer Logs** – The contractor will prepare a daily log of the soil generated and transferred within the site boundaries (e.g., from excavations to stockpiles). The source (e.g., “soil from excavation area A”) and the approximate quantity of soil will be identified in this daily log. Copies will be provided to the Unocal construction supervisor weekly.
- **Off-Site Tracking Log** – A continuous log of all off-site shipments, which will be maintained by the contractor, will include the following information: type of material, source of material, day shipped, receiver and weight. Copies will be provided to the Unocal construction supervisor weekly.
- **Health and Safety Log** - A daily record will be maintained of the personnel who are on site and the levels of protection they worked in by task. Results of field health and safety monitoring will be documented in the health and safety log.

Unocal or their designated representative will complete the following:

- Manifests for Waste Shipment - Unocal will be responsible for reviewing and signing all manifests. The contractor will provide Unocal with waste quantity information.
- Compliance monitoring documentation – An electronic database of all samples collected and electronic and hard-copy calculations of all compliance monitoring statistics.

Once the interim action is completed, a registered surveyor will survey the boundaries of the excavation. The survey will be used to generate as-built drawings for the required as-built report (Section 7).



## 6 PUBLIC PARTICIPATION

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The 1996 Public Participation Plan, prepared cooperatively by Unocal and Ecology, defines the public involvement activities to be accomplished as related to remedial actions at the Terminal. These required activities are relevant to the interim action.

The required public involvement activities are listed below. These activities will be led by Ecology with informational support from Unocal:

- This Interim Action Report will be available for review during a 30-day public comment period.
- A notice will be placed in the MTCA Site Register.
- Ecology will prepare and distribute a Fact Sheet to describe the interim action.
- A display advertisement will be published in the local newspaper of highest circulation; the ad will announce the public comment period and public meeting.
- Copies of this report will be placed at designated repositories.

Additionally, a letter(s) will be prepared by Unocal and distributed to neighbors adjacent the Terminal, informing the neighbors of the interim action activities and schedule. Unocal contact information will be provided in the letter. Unocal may distribute letters at various times during the interim action schedule to ensure property owners are aware of imminent activities.

## 7 REPORTING

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Technical requirements in contractor bid documents will be transmitted to Ecology for review and comment no later than the time they are transmitted to the contractor(s).

As required by WAC 173-340-400(6)(b)(ii), an as-built report will be completed by the engineer responsible for oversight during the interim action. The report will include as-built drawings and an opinion as to whether the interim action was completed in substantial compliance with this work plan. As-built drawings will be based on the surveyed excavation extents.

The report will include the following items:

- Descriptions of field activities, including unusual or unexpected conditions or events;
- Figures showing the final lateral and vertical extent of excavations;
- Figures showing post-excavation soil sampling locations;
- Tables presenting the soil sampling results;
- Figures, tables and text showing the estimated nature and extent of contamination remaining in the interim action areas at the conclusion of the interim action, in sufficient detail to allow evaluation of whether additional cleanup is necessary after cleanup levels have been developed;
- An estimate of the total in-place volume of soil and basin material removed;
- A summation of soil and basin material, in tons or yards, that was transferred off site;
- Copies of daily reports and other field documentation;
- Copies of laboratory reports and chain-of-custody documentation;
- Copies of all waste manifests and bills of lading;
- Electronic database including all sampling data.

The report will be transmitted to Ecology for review and approval.

## **8 SEPA**

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Per Chapter 43.21C RCW, State Environmental Policy Act (SEPA) requirements must be met for interim actions. The SEPA rules specify the requirements for SEPA/MTCA integration at cleanup sites. A threshold determination must be made for interim actions. In addition, SEPA considerations for interim actions must include considerations for the entire project.

For this action, a threshold decision to issue a Determination of Nonsignificance has been made by Ecology based upon review of the SEPA checklist submitted for the site (Appendix D).

## **9 SCHEDULE**

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Ecology approval is required prior to initiating the interim action. If approval is received, Unocal anticipates proceeding with the interim action in June 2003.

## **LIMITATIONS**

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The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

## REFERENCES

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- ACOE. 1995. Letter from Thomas F. Mueller, Chief, Regulatory Branch, Seattle District Corps of Engineers, Department of the Army, to Gene Fong, Division Administrator, Federal Highway Administrator. Reference: Edmonds Ferry Terminal. May 25.
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MFA. 2003. Draft Supplemental Remedial Investigation Report, Unocal Edmonds Terminal. Prepared for Unocal Corporation. In progress.

**FIGURES**



**APPENDIX A**  
**LIST OF STATE AND LOCAL PERMITS**

## **List of State and Local Permits**

Provided below is a list of state and local permits pertinent to the interim action.

Pursuant to WAC 173-340-710(9), the remedial actions to be conducted are exempt from compliance with the procedural requirements of these permits; all substantive requirements must be complied with. In practice, this means that all substantive requirements of the permits are incorporated into the requirements of this work plan and the procedural requirements for the individual permits are replaced by the procedural requirements of MTCA for conducting the remedial actions.

- State NPDES Permit
- City of Edmonds Grading, Fill and Excavation Permit
- City of Edmonds Critical Areas Checklist

**APPENDIX B**  
**NPDES PERMIT**

## **APPENDIX C**

**ARMY CORPS OF ENGINEERS' LETTER  
DATED MAY 25, 1995**

**APPENDIX D**

**DETERMINATION OF NONSIGNIFICANCE AND SEPA**  
**CHECKLIST**